

# Phase Change with Artificial Structure for Data Storage

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## Abstract

Chalcogenide-based phase change materials have been found to be useful for many applications, which include rewritable phase change optical media, phase change memory, electrical switches, sensors, and potentially many others that can utilize its unique phase change properties between amorphous and crystalline states. These applications are highly dependent on the phase change materials. However the phase change materials that are suitable for these application in the nature world are quite limited. Phase change materials with artificial structure provide a good solution to develop phase change materials with desirable properties. By adding the artificial boundary and using different element materials, the optical, electrical, thermal, crystallization and mechanical properties of phase change materials with artificial structure can be designed and controlled. The theoretical consideration, simulation, and experimental results will be presented in the conference.